2

FIRST ANNUAL REPORT

OF THE

BOARD OF DIRECTORS

OF

The North Pennsylvania Railroad Company,

WITH THE

PROCEEDINGS OF THE ANNUAL MEETING OF STOCKHOLDERS

AND THE

REPORT OF THE CHIEF ENGINEER.

JANUARY 9, 1854.

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1854.

ANNUAL MEETING.

Office of the North Pennsylvania R. Road Co.,

Philadelphia, January 9, 1854.

Pursuant to notice, according to law, an Annual Meeting of the Stockholders of the North Pennsylvania Railroad Company was held this day at the office of the Company.

On motion of Mr. John Welsh, Jr., Mr. JOHN A. BROWN was called to the chair, and EDWARD ARMSTRONG appointed Secretary.

Mr. Thomas S. Fernon, President of the Company, read the report of the Board of Directors, and also the annual report of the Treasurer.

The Secretary then read the report of the Chief Engineer.

On motion of Mr. R. V. Massey the above reports were adopted.

On motion of Mr. Fernon, it was unanimously

Resolved, That the two special acts of the General Assembly of the Commonwealth of Pennsylvania, herein recited by title, be, and the same are hereby accepted and made a part of the charter of the North Pennsylvania Rail Road Company, to wit:

"A Supplement to an Act, entitled 'An Act to incorporate the Philadelphia, Easton and Water-Gap Rail Road Company;'" approved the twenty-fifth day of January, one thousand eight hundred and fifty-three.

"A further Supplement to an Act, entitled 'An Act to incorporate the Philadelphia, Easton and Water-Gap Rail Road Company;'" approved the twenty-ninth day of March, one thousand eight hundred and fifty-three.

Mr. Samuel V. Merrick then submitted the following Preamble and Resolutions, which he prefaced by saying:—

That when the Philadelphia, Easton and Water-Gap Rail Road was first projected and talked of, he understood it to be merely a local road to bring back to Philadelphia the trade of the Lehigh, which has been diverted to New York by means of better facilities than we, unfortunately, possess at this time, and which, it occurred to him, would be constructed by those directly interested in that trade, who transacted their business in the northern part of the city, or those who owned real estate to be benefited by the location of the road. In view of the liberal support given to the Pennsylvania Rail Road by citizens of that locality in which their direct interest was but trivial, the friends of that road felt constrained to reciprocate, and to a limited extent assisted in collecting the capital already subscribed. The completion of the subscriptions would, however, in all probability, have been left to those parties directly interested, but for the developements since made by the officers of the Company in their reports and publications, especially in the able address of the President, recently made public, which have divested this enterprise of its local character, and presented it as one of such enlarged importance, as to command the exertions and influence of one entire community in its consummation. He referred to the great Pennsylvania Rail Road, and to the liberality with which persons not directly interested in the trade which it has brought to this market, came forward, after the advantages to be derived by the city had been fully shown, and subscribed to the stock; and now he called upon those so largely benefitted by the consummation of that great enterprise, to aid in building the North Pennsylvania Rail Road, which is only second in impor-

tance to the Pennsylvania road to the West. When the idea of going to Waverley, on the New York State line, was first suggested, he regarded it as merely foreshadowing that which might happen at some future day. The subject gained confidence, and as he gave it the consideration it then and now so eminently deserves, he deemed it of decided moment, and such as all the business men of Philadelphia should evince the warmest interest in. By this road, Philadelphia will be much nearer the Lakes of Erie and Ontario than even the capital of the State upon which they border. He referred to the many obstacles which attended the commencement of the Pennsylvania Rail Road, and the difficulties and objections which had to be surmounted and overcome, before the capitalists and business men of this city would take hold of it. Constant agitation was kept up, and that alone, he said, carried it through. He thought the present a fitting opportunity to agitate this project, and hoped every effort would be made to progress with the work steadily and rapidly, until it shall have been completed to the point designated—Waverley.

" *Whereas*, authority has been conferred by the Legislature of Pennsylvania, on the North Pennsylvania Rail Road Company, to extend their line of road through the northern counties of the State, whereby a connection may be made with the extensive series of Rail Roads in Western New York, and

" *Whereas*, such an extension up the vallies of the Lehigh and North Branch of the Susquehanna, will open to Philadelphia a wide extent of country abounding in agricultural and mineral wealth, from which we are excluded by the want of an iron highway; and

" *Whereas*, an extension of the North Pennsylvania Rail Road to or near the town of Waverley, in New York, would not only intersect all the anthracite coal fields, and the eastern terminus of the great bituminous coal region of Pennsylvania, but would also place Philadelphia in direct connection, by first class Rail

Roads, with the principal ports of Lakes Erie and Ontario, giving her a shorter and better route to those inland seas, and the immense extent of country, on both the American and British shores, than is open to either of the Atlantic cities of Baltimore, New York or Boston; therefore,

"*Resolved*, by the Stockholders of the North Pennsylvania Railroad Company, that the line of their road ought to be extended to the Northern boundary of the State, and to connect with the Western railroads of New York by the surveyed route indicated in the report of the Chief Engineer, at the earliest possible period.

"*Resolved*, That in the furtherance of this object, and to promote its rapid accomplishment, a general meeting of the citizens of the city and county of Philadelphia be held at the Chinese Museum, South Ninth street, on Tuesday evening, the 24th of January, at half past seven o'clock."

Mr. William Welsh, on rising to second the resolutions, stated that he was truly glad to find such resolutions offered by a gentleman who had more specific knowledge of railroad enterprizes than any other stockholder. He said that he seconded them most cordially; first, because the gentlemen charged with the management of the North Pennsylvania Railroad were entitled to the highest measure of confidence; they were men of integrity, experience, and energy. The combination of these qualities, with their success in their own business, satisfied him that they were just such persons as he would be willing to entrust with his own private interests. Others might have given this as a second reason for advocating the resolutions, but twenty-five years experience, in a large mercantile business, satisfied him that success was more dependent upon the fitness of those who were to manage an enterprise, than upon the promise of large profits.

The second reason was a firm belief that the location of this road is only second in importance to that to Pittsburgh. In a

pecuniary point of view, this road has a great advantage over that great route; viz., that its terminus is in a city. Although Philadelphia is now only the second city in the United States, yet ere long it will be the greatest manufacturing city in the world, if the virtue and intelligence of its inhabitants are properly cultivated. The connecting link with a large city must always be the most profitable portion of a railroad. The importance and profit of a direct connection with the Northern counties of this State, has been fully discussed in the able reports just read. A visit to Canada last summer convinced him of the great advantage that would accrue to our commerce, if we can make an early union by railroad with that rapidly improving country. Modern science is swinging a railroad bridge over the rapids of the Niagara, seemingly with as much facility as in olden time we swung a hammock on shipboard. An iron tubular bridge is to span the great St. Lawrence river. Indeed, it was evident that the British government had determined to give Canada all the advantages of a full interchange of commodities with the United States. Therefore, if Philadelphia wishes to reap any share of the harvest that is her due, no time should be lost in forming the connection.

Messrs. Victor E. Piollet and Gordon F. Mason, of Bradford county, being present, were invited to address the meeting. These gentlemen stated that the vast majority of the citizens of the Northern counties of Pennsylvania, who now traded in New York, were quite favorable to the road, and desired to see it pushed forward with energy, in the hope that the time was not far distant when they could bring their produce to Philadelphia, in exchange for the goods and manufactures of this market.

The resolutions were then unanimously adopted.

Mr. George Erety then offered the following preamble and resolutions, which were unanimously adopted:—

Whereas, from the limited means of communication with the region of country penetrated by the North Pennsylvania Rail-

road, much of the trade thereof has heretofore been and now is directed to other cities, increasing their wealth and importance to the disadvantage and injury of the business of Philadelphia; And whereas, it is expected that on the opening of the North Pennsylvania Railroad a large share of said trade will be done with Philadelphia: Therefore,

Resolved, That the thanks of the Stockholders are hereby respectfully tendered to Thomas S. Fernon, Esq., for originating the scheme of the North Pennsylvania Railroad, for his services in the primary and supplemental legislation connected with its charter, and for his zeal and enterprize in presenting the local and general advantages of said road to the citizens of Philadelphia.

Resolved, That the thanks of this meeting are also tendered to the Board of Directors for the energy manifested in the location of the road, and general business of the Company, during their term of service.

It was then, on motion of Mr. Merrick,

Resolved, That the reports of the Directors, the Treasurer, and of the Chief Engineer, together with the proceedings of the meeting, be published.

On motion of Mr. Algernon S. Roberts, it was then

Resolved, That the meeting adjourn for the purpose of proceeding to elect a President and twelve Directors, to serve during the ensuing year.

EDWARD ARMSTRONG,
Secretary.

At a meeting of the Stockholders of the North Pennsylvania Railroad Company, held this day, the following persons were unanimously elected to serve as President and Directors for the ensuing year:—

PRESIDENT,

THOMAS S. FERNON.

DIRECTORS,

Isaac S. Waterman,	Isaac R. Davis,
John Brock,	David S. Brown,
John Welsh, Jr.,	Charles Henry Fisher,
Chas. W. Churchman,	Algernon S. Roberts,
J. Gillingham Fell,	John O. James,
John Jordan, Jr.,	John Ely.

CHARLES SANTEE,
RODOLPHUS KENT,
SAMUEL J. LEVICK,
Judges.

Office of The North Pennsylvania R. R. Co.,
Philadelphia, January 9th, 1854.

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REPORT.

To the Stockholders of the North Pennsylvania Rail Road Company.

GENTLEMEN :—

In submitting to you the annual report of the proceedings of the Board of Directors, the first one made to you, exhibiting the affairs of the North Pennsylvania Rail Road Company, they have deemed it of moment as matter of information, interest and usefulness for reference, to trace, in a concise manner, the legal origin of the corporation and the official development of its objects.

The North Pennsylvania Rail Road Company was incorporated under the name of "The Philadelphia, Easton and Water Gap Rail Road Company," by an act of the General Assembly of this State, approved the eighth day of April, one thousand eight hundred and fifty-two. After the passage of the act of incorporation attention was urged, through the columns of the newspaper press, to the project of a new rail road to start from Philadelphia, passing thence northward direct to the Lehigh river and connecting with the north and east counties of Pennsylvania. On the 8th day of June, 1852, the Commissioners named in the act of incorporation held a meeting and adopted measures initiative to an organization of the company. On the

first day of July, 1852, the Commissioners opened books to receive subscriptions to the capital stock of the Company. Letters patent were issued to the subscribers to the stock, bearing date July 9th, 1852; and on the 16th day of August, next succeeding, the Company was organized by the election of the requisite officers, by the holders of the shares of stock subscribed for. William B. Foster, Jr., Esq., who had been engaged by the Commissioners to conduct the preliminary surveys, was chosen Chief Engineer of the Company, which position he subsequently resigned, and was succeeded by Edward Miller, Esq., then Chief Engineer of the Pennsylvania Rail Road Company, who was elected Chief Engineer of the North Pennsylvania Rail Road Company, by the Board of Directors, on the 7th day of February, 1853.

Mr. Foster made a report upon the surveys up to date, November 19th, 1852, and having after that time received instructions to organize an additional corps of engineers to survey a route by way of the valley of Sandy Run, a new corps was accordingly organized and in the field in that locality when he retired from the service of the Company.

The engineering department of the Company, it will be observed, has been from the first under the charge of gentlemen of private worth and high professional reputation.

In the first authoritative publication made by a "committee of general superintendence," appointed at the Commissioners' first meeting held June 8th, 1852, subscriptions were asked to the stock of the Company, in behalf of a rail road to connect Philadelphia with the Lehigh valley as "the *first* thing to be accomplished." It was represented, in the publication referred to, that "a rail road leading to the waters of the Lehigh, at an eligible point, is destined to become the *main trunk* of two great lines of rail road diverging thence, *one to the northwest by way of the Valleys of the Lehigh and the North Branch*, the other by way of the Delaware Water Gap." This language is cited to demonstrate that, in the origination and development of the scheme, the

thought of a great north trunk line of road to occupy the valleys of the Lehigh and North Susquehanna was embodied, though it was not then elaborately evolved nor pressed, as such action would have been premature and inopportune.

The object at the bottom of the movement and the corner stone of the structure, was the securing of means to warrant the commencement of a road leading direct from Philadelphia to the Lehigh river. Consequently, the surveys were restricted to those bounds, until the favor with which the community received the project, and the generous support they extended to it by subscriptions to the stock of the Company, rendered success obvious and intelligible even to the doubting and incredulous. The proposed union of Philadelphia with the Lehigh valley, by a direct rail road, being thus in progress of realization, it became necessary in view of ulterior extensions of magnitude and importance to Philadelphia, that ground adapted to the purpose cherished, should be secured and held for future operations. Accordingly, on the 22d day of February, 1853, instructions were given to the Chief Engineer to make surveys in the Lehigh valley, especially that portion thereof immediately south of White Haven, and that portion of the Delaware valley between Easton and the Water Gap. More privileges to the original comprehensive corporate rights of the Company having been obtained, meanwhile, from the Legislature, during the session of 1853, instructions were communicated to the Chief Engineer, dated April 16th, 1853, to transfer the corps of engineers then running a line in the Delaware valley, to the North Branch valley of the Susquehanna, for the purpose of extending the main line of the road, by actual location, to form a connection with the New York and Erie Rail Road, at the State line, in Bradford county. And with a view to despatch as well as economy in prosecuting field operations in the season of long days and mild weather, the Chief Engineer was directed on the 19th day of July, 1853, to place a second corps in the valley of the North Branch; also, to adopt such other measures as would accomplish the declared "desire and ob-

ject of the Company to have the whole route definitely located, at the earliest practicable period, from the city of Philadelphia to the New York State line."

The successful steps thus enjoined upon the Engineering department, have resulted in securing for Philadelphia the *ground and the opportunity* to build, and forever enjoy the use and profit of a great line of Rail Road, reaching from the City's centre through a belt of eight sterling Pennsylvania counties to the most eligible point on the State border, there to interlock with the Rail Roads plaited over the whole surface of western New York, opening a grand mineral route to the Lake basin, and the only direct route to Canada West. The topography and geology of the consecutive counties on the route, the variety and value of their ever yielding surface and underground resources, their local position relatively to each other, and their attitude geographically with reference to a grand highway, uniting, by the shortest and most richly embellished iron belt, the commerce of the Atlantic at Philadelphia with the commerce of the Lakes at Buffalo, comprise, singly and jointly, a series of unsurpassed Rail Road tableaux, combining natural grandeur and richness with commercial utility and promise.

The counties of North and East Pennsylvania are searched out and occupied by the industrious and enterprising, attracted thither by the triple wealth of forest, field and mine. From lands in high cultivation are gathered the harvests of a prosperous agriculture, and from coal veins and ore beds untold measures of mineral value are uncovered and lifted out. No other spot of equal extent in the Commonwealth contains more of the actual and substantial elements of intrinsic wealth, than the North and East counties of Pennsylvania; and the time is not remote when the worth of priority of occupation of the ground now occupied by the line of the North Pennsylvania Rail Road, will beam upon the intelligence of Philadelphia in the visible glow of a noonday reality. Other interests had already apportioned, in expectation, parts of the route to adverse schemes, and move-

ments less rapid and urgent than those ordered, would have lost to this community, beyond replacement, links in the line which would have left the chain broken and dissevered. The loss of a section in the through main route, would have been as the loss of a vertebra in a back bone otherwise strong and complete.

The local tonnage which the range of territory on the route of the North Pennsylvania Rail Road will contribute, will be of such abundance and profit as to warrant and justify the establishing of a low and cheap scale of through rates on freight and passengers between Philadelphia, western New York, the Lakes, and Canada West. Philadelphia will then be able to divide with New York city the vast trade of those teeming regions, and fill her coffers from a quarter which has heretofore in its dealings been the ally and customer of a neighbor city. The streams of trade flowing from the fountains of the North West now coursing to the Hudson will be parted, and half the flow turned to the Delaware by the new channel of the North Pennsylvania Rail Road.

A Rail Road passing through a thriving agricultural and prolific mineral country settled, improved and developed by a prosperous population, may be made the constant recipient of local business amply sufficient to reimburse working expenses and provide interest on cost of construction, leaving through fares and charges to be regulated to draw tonnage and passengers from competing lines leading to another city market. And as the North Pennsylvania Rail Road can command and realize handsome profits on its *local*, independent of its *through* business, it is manifest that the rates and charges to be imposed on the latter may be fixed so low as to divert to *Philadelphia* a large amount of western New York, Lake and Canada trade, which else must continue to seek the city of New York, over other routes passing through a less productive country. The North Pennsylvania Rail Road, bringing fresh trade and new customers to Philadelphia, and carrying into a fresh market in a new direction goods and merchandise from Philadelphia, will stimulate and multiply

transactions in commerce, manufactures, and the mechanic arts throughout the city and county, in a plentitude to be equalled in no other way.

It is through the disbursements and gains incident to such transactions, that densely peopled communities are supported and enriched; and if the aggregate of business be increased two-fold, it follows, other things remaining the same, that the evidences of prosperity and means of success will likewise be enjoyed in double measure.

The wide bounds traversed by the engineering corps, necessarily rendered unavoidable a large outlay for engineering services. But inasmuch as it was only by prompt action in the premises, that the Board were enabled to anticipate other interests, adverse to Philadelphia, in the occupation of the best ground at important points, it is believed that these expenditures were founded in a policy justified by foreshadowed events, which will soon become abundantly palpable to illustrate the necessity existing for its adoption and practice.

The surveys ordered from time to time, comprise an independent through line from Philadelphia by way of the Lehigh and North Branch Rivers to the New York State line in Bradford County, for a branch road to the Delaware Water Gap, and a branch road to the Borough of Doylestown; the latter to be so located as to permit its extension, if desirable hereafter, to the Delaware River.

The results ascertained under the instructions given, will be found in the Report of the Chief Engineer, presented herewith, which also exhibits the active progress making in the work between the city and the Lehigh River.

The North Pennsylvania Rail Road Company, among the many privileges conferred by their Charter, have authority to connect "their Rail Road with any other Rail Road now constructed, or which may hereafter be constructed, at either end, or at any intermediate point on the line thereof, *in such manner*

as may be deemed most convenient and advantageous in each and every case."

They also have power to build and use disconnected links of their route in like manner as if the whole road were constructed in one continuous line. If, therefore, the owners of any road with which they may connect, as authorized by law, should attempt to discriminate in their charges or otherwise against Philadelphia on any intermediate link between the termini of the surveyed route, presuming that connections should be made with links of road lying parallel with the line surveyed, the company could continue their road parallel with such link, and thereby effectually guard and foster Philadelphia interests. In a word, the North Pennsylvania Rail Road Company can build a through road without using any intervening links belonging to other companies, or they can first supply intermediate links where the same are necessary to complete an iron union between the extremes of the main line. Unquestionably, an independent through route, under a single management, is to be preferred; and yet the expenditure required to construct such a work, may, for a time, justify if not constrain the building of dissevered portions of the main route, in order sooner to secure an early through Rail Road communication by way connections, to be made independent afterwards, when occasion shall arise from any cause, by an unbroken continuous through line.

Holding the preferred rail road ground, if not the only *available* rail road ground in the Upper Lehigh and North Susquehanna valleys, the North Pennsylvania Rail Road Company, through Philadelphia aid, can in all time, against all competition, protect and promote Philadelphia interests.

To specify more particularly the intermediate roads, or any of them, with which a connection may for a period be agreed upon, or of which a purchase on lease may be made, is deemed superfluous, for the reason that such specification would in no wise simplify nor facilitate the common object lying at the foundation of the movements of the North Pennsylvania Rail Road Com-

pany. The same care which prompted and ordered the surveys, has been steadily directed to the matter of connections; and whatever course may be adopted by the Board, will be the result of diligent inquiry and cautious deliberation.

No contracts have been allotted for any work beyond the first division of the route, reaching from Philadelphia to the Lehigh river. The first allotment of sections on this division was made by the road committee of the Board, on the 27th day of May, 1853. The ground was first broken, on the tunnel section, at Landis' Ridge, on the 16th day of June, 1853.

The means of the Company, exclusive of engineering expenses, have been employed in the prosecution of the work between the points named, so that Philadelphia may be re-united, in the shortest practicable time, with the Lehigh valley by direct rail road communication.

A portion of this division, extending from Philadelphia to the Bethlehem Turnpike, north of Sandy Run, a distance of fourteen miles, will be opened for use in the current year, from which opening a part of the capital expended will become productive and remunerative out of the earnings of the road.

All the estimates ordered and proposals received, are for a road way to be graded and bridged for a double track, though it is the intention of the Company to open the road with a single track laid with rails.

A modification of the specifications was required, widening the road bed to the requisite dimensions for a double track of broad guage, so that when the guage of the road should be determined, the graduation might be found of ample width to accommodate either or both guages equally well; the choice being restricted by controlling causes to the track of four feet eight and a half inches guage, or a track of six feet guage. The difference between these two guages being fifteen and a half inches, there will be abundant room for the switches, &c., should it become the interest of the Company to lay down three rails, and thus accommodate cars fitting both the narrow and the wide guage.

On the last day of the year 1853, the subscriptions to the capital stock of the Company comprised the following items, to wit:

	Number of Shares.	Amount of Subscriptions.
By Individuals,	11,553	$577,650
Banks and Insurance Companies,	1,250	62,500
Contractors for work in progress,	4,969	248,450
City of Philadelphia,	10,000	500,000
District of Spring Garden,	3,000	150,000
Total Shares and Subscriptions,	30,772	$1,538,600

The Treasurer's Report, appended hereto, will exhibit the receipts and disbursements.

The Company having continued under their original corporate title of "The Philadelphia, Easton and Water Gap Rail Road Company," until the purpose of its primary adoption was subserved, the shorter and more appropriate name of "The North Pennsylvania Rail Road Company," was substituted by the Board of Directors, on the third day of October, 1853, agreeably with the provisions of an act of Assembly, passed the 18th day of April, 1853, to authorize and empower the Board to make such change.

The purchase of Real Estate in and near the city and incorporated Districts of Philadelphia, was managed by the Board with a view to economy, convenience, permanence and adaptation. By a judicious arrangement of the new office building on the north side of Walnut street, west of Fourth street, now approaching completion, it is expected after the officers of the Company, including the Engineers, shall have been furnished with accommodations, that there will remain enough rooms for rent to realize sufficient revenue to pay interest on the cost of the whole building.

The square of ground purchased in the District of the Northern

Liberties, bounded by Willow and Noble streets and by Front street and Washington Avenue, is deemed a most eligible depot site for a Railroad approaching Philadelphia from a North direction. Situated in the centre of the commercial front of Philadelphia, as bounded by the Navy Yard and the Richmond coal wharves, the depot of the Company will be in close proximity to the shipping docks, and of convenient access from all points in the commercial quarter of the city.

A line running east and west and dividing the population of the city and county into two equal portions would pass but little, if any, south of the Willow street depot site. And as the more rapid progress of population in a north direction will carry such centre line farther to the north each year, it will not be many seasons ere the Willow street depot site will be south of the centre of population, and in the midst of the expanding commerce and business along and near the Delaware river front. Front and Willow streets, besides, is an eligible spot from which a connection, by Rail Road, may be at once secured with Broad street and the river Schuylkill, and from which branch roads may also be extended southward in fitting time hereafter.

The purchase of about seven acres of land in the District of Kensington, fronting on Second and Washington streets and on Chatham and Cherry streets, is also regarded an advantageous operation, both for the Company and for that District, as furnishing an excellent site for depot and shops, which will serve the uses of the Company, and which will enhance the value of property, create a demand for labor, and stimulate improvements in the vicinity.

It has not been forgotten in the choice and purchase of property within and near the incorporated Districts, that the transactions of a successful Rail Road, in a very few years, will change the aspect and value of Real Estate along and near its line. And, therefore, it has been the desire of the Board to procure at once full ground surface for the depots, equipments and appurtenances of a large Company. The sum of money repre-

sented by the ground owned by the Company, at this time, would fall far short of obtaining an equal extent of ground surface, as well situated, after the road shall be in operation.

The Real Estate here referred to, it will be remembered, is located, respectively, in the Districts of Kensington and the Northern Liberties, and the City of Philadelphia. Thus whilst the entire community will be benefited by the augmentation of business, through the transactions of the North Pennsylvania road, the Districts of Kensington and the Northern Liberties will be specially benefited by the expenditure of capital and the construction of valuable improvements within their limits.

The District of Spring Garden, which is not upon the line of the Road, with a genuine appreciation of the value of Rail Road Improvements to all sections of the community, promptly subscribed to the Road, and as promptly paid her subscription.

The citizens of Doylestown, Bucks County, having appointed a deputation to confer with this company concerning a proposed connection with that borough by a Branch Road, a conferrence was granted, after which the following resolution was passed by the Board of Directors, at a meeting held on the 8th day of December, 1853:—

"*Resolved*, That the North Pennsylvania Rail Road Company will construct a branch road from the main line of their road to the borough of Doylestown, whenever there shall have been specially subscribed to the stock of this company a sum sufficient to defray the cost of said branch road, according to the estimate to be made by the chief Engineer of this company; it being expressly stipulated and understood, on the part of this company, that the right of way shall be obtained free of cost to this company; and that said branch road, when constructed, shall be equipped and run by this Company."

The Chief Engineer, under instructions to fix the location as hereinbefore indicated, reported the cost of a branch road to Doylestown at $160,000. Consequently, when the terms of the foregoing resolution shall have been complied with, duty and

policy will alike require the speedy construction of a branch road from the main line to the Borough of Doylestown.

The Board of Directors have to lament the loss by death of their late fellow member Jacob M. Thomas, Esq., who departed this life on the 6th day of October, 1853. Mr. Thomas was endeared to his friends and associates by those sterling qualities which distinguish the good citizen and staunch friend of legitimate enterprise. The decease of Mr. Thomas was the first and only death which has occurred in the direction of the company since its organization. The Board did not avail themselves of their right to fill the vacancy caused by the death of Mr. Thomas.

On several occasions the Board have authorized the President of the company to prepare and publish, for circulation, statements and addresses setting forth the character and object of the proposed work, the imperative necessity existing for and the permanent good to result from the consummation of the scheme, in its several divisions, and in the magnitude of its whole outline.

To insure its success the co-operation of the entire community is invoked. The response needed is not the mere encouragment of approving words, but the potent help of dollars in collective sums. Funds in large amount, yet sure of re-embursement, will be required; and if every member of the commnuity, municipal and individual, were to contribute in the form of a loan, by a subscription for shares of stock to bear interest, in proportion to the pecuniary benefits certain to accrue from the trade it would bring hither and carry hence, its undelayed construction would be an impending reality betokening a bright future.

By order of the Board of Directors.

THOMAS S. FERNON, *President.*

Office of The North Pennsylvania R. R. Co.,
Philadelphia, January 6th, 1854.

TREASURER'S REPORT.

Amount received from Stockholders, in payment of			
First instalment,			$127,615 00
Second "			124,025 00
Third "			116,020 00
Fourth "			25,330 00
Fifth "			19,725 00
Sixth "			19,305 00
Seventh "			19,095 00
Eighth "			18,960 00
Ninth "			18,740 00
Tenth "			18,740 00
			$507,555 00
Expenses, including printing, advertising, salaries, rent of offices, fees of counsel, &c., since the organization of the Company,		$12,000 30	
Right of way, fencing, &c.,		16,610 58	
Engineering—			
Southern Division,	24,786 45		
Delaware "	3,350 58		
Lehigh "	10,919 16		
Susquehanna "	7,572 03		
		46,628 22	
Building, graduation, and real estate,		258,855 69	
Building No. 123 Walnut street.		11,334 92	
			345,429 71
Balance in the hands of the Company,			162,125 29

WILLIAM WISTER, *Treasurer.*

Philadelphia, Dec. 31, 1853.

REPORT OF CHIEF ENGINEER.

THOMAS S. FERNON, ESQ.,

President of North Pennsylvania Rail Road Company:

SIR:—The clear and able exposition of the objects and prospects of the North Pennsylvania Rail Road, lately published by the Board of Directors, proves conclusively the importance of its early construction, its advantages over rival routes, and its commercial value to the stockholders, the City of Philadelphia, and the State of Pennsylvania. In view of this publication, it will be necessary for your engineer to make only a few professional remarks on these important topics.

The great water courses of Pennsylvania offer the topographical facilities necessary for the construction of the first class railways destined to develop the resources of the Commonwealth. The Reading Rail Road follows the valley of the Schuylkill. The Pennsylvania Central Rail Road occupies the valleys of the Susquehanna, Juniata and the Conemaugh, which penetrate all the mountain ranges of the State except the main Allegheny. The proposed Sunbury and Erie Road, when constructed, will follow the courses of the west branch of the Susquehanna and the Allegheny, with their tributaries, throughout nearly its whole length. In like manner, the Lehigh and the North Branch of the Susquehanna, indicate unmistakeably the proper course

for a Great Northern Highway to Central and Western New York, to the Lakes, and to Canada West. At Waverley, the New York and Erie Rail Road, which has followed the valleys of the Canisteo and Chemung in a south-easterly direction from Hornellsville, meets the State line of Pennsylvania; and from that point makes a considerable detour to the north, before it again reaches the State line at the Great Bend. Waverley is a thriving village of four years growth, having in that time attained a population of about eighteen hundred inhabitants, mainly dependent upon the business furnished by Bradford County, Pennsylvania, to the New York and Erie Rail Road. It lies partly in New York and partly in Pennsylvania, and is upon the promontory called Tioga Point, between the Chemung and Susquehanna rivers.

From this point west and north, as the map prepared to accompany this Company's exposition plainly shows, the New York and Erie Rail Road, with all its branches and ramifications, appears to belong rather to a main trunk line down the Susquehanna, than to the Eastern division of the New York and Erie Rail Road. And if the object of the New York and Erie Rail Road Company had been merely to connect their metropolis with Western New York, by the best line which nature permitted, they should originally, without doubt, have occupied the valley of the North Branch from Pittston to Waverley, for it is the best route to New York as well as to Philadelphia. To test the truth of this assertion, let straight lines be drawn on the large State map of Pennsylvania, from Waverley to Philadelphia, and from Waverley to New York. It will be found that their lengths are nearly the same; Philadelphia being 160 miles distant, and New York 162. Pittston lies nearly half way between them, the course of the North Branch to that point being an average between the two. The air line to Philadelphia passes through Athens, Wysox, Wyalusing, Mauch Chunk and Lehighton, all points on our route. Towanda is only $2\frac{3}{4}$ miles from the air line; Tunkhannock, 12; Pittston, $13\frac{1}{4}$; Wilkesbarre, 5; White

Haven, 5; Rockport, $2\frac{1}{4}$; Penn Haven, $1\frac{2}{3}$; Allentown, $5\frac{1}{2}$, and Bethlehem, $10\frac{3}{4}$. The most distant point on our route from the air line is $14\frac{1}{4}$ miles. I think these facts may be taken as sufficient evidence that the Lehigh and North Branch valleys form a natural and obvious route to Philadelphia; the near coincidence of their courses with each other, and with the existing rail roads of Western New York, is indeed both remarkable and significant. The contrast with the New York routes is very striking. If we compare the New York and Erie Rail Road alone, Port Deposit is $34\frac{1}{4}$ miles from the air line, between Waverley and New York; and except at the extreme termini, they nowhere approach each other. If we make the comparison with the route now in progress by way of Great Bend, Scranton, the Delaware Water Gap, and the Central Jersey Road, we shall find that it crosses the air line to New York once, but is $27\frac{1}{4}$ miles from it at the most distant point, while no part of the North Branch valley above Pittston is more than $16\frac{1}{2}$ miles from it. If, again, we compare the same line as a Philadelphia route, using the Belvidere and Trenton Rail Roads to our city, it will be seen that at one point east of Binghampton it is 38 miles from the air line between Waverley and Philadelphia, being 24 miles further than the most distant point on our own line.

These facts speak for themselves; and as the prima facie evidence thus obtained is fully confirmed by our surveys, it is worthy of serious consideration whether the prize for which New York has been willing to construct two rail roads, both much longer, and vastly inferior to our own in character and local resources, is not of sufficient value to deserve the undivided patronage of our citizens.

If our rivals have not yet learned that the true route to their own lake cities, and to the treasures of the western part of their own State is in the valley of the North Branch, they must soon discover it, and should Philadelphia decline to occupy that valley now, under our charter, it is probable that she will never again have an opportunity to refuse. She has suffered Baltimore

to seize upon the main Susquehanna river, and New York to take the first choice of ground in the Lehigh valley. These are two great highways which Philadelphia should have held and controlled at any risk or expense which might have been necessary; and of all her commercial mistakes she has made none greater than giving these keys of her proper treasures to her rivals. If she now yields the North Branch, and the contracted valley of the upper Lehigh, the divorce of one half of the State from Philadelphia may be formally pronounced, and our eyes closed to everything except the Schuylkill coal field, and the Pennsylvania Central road with its western extensions. No rail road scheme is sure to be managed for the best interests of its constituents, if a rival controls an intermediate link in an important portion of the chain; but in this case one favorable charter covers the entire ground to our very doors; no rival stands in the path controlling any portion of the line—no foreign legislation can interfere with us to the State border, where the numerous rail roads of western and central New York will be eager to avail themselves of the advantages we shall be prepared to offer.

From Waverley the Susquehanna pursues a generally direct course until it reaches Pittston, where it enters the Wyoming valley, and turning a right angle flows southwesterly to its junction with the West Branch at Northumberland. This angle indicates the proper place for leaving the Susquehanna, and the single summit which divides it from the Lehigh being passed, the latter river follows the general direction already indicated to Allentown, where meeting the South Mountain it also is deflected, and flows at right angles with its former course, to Easton. From a point as near the Allentown bend as the topography permits, which is at the gap made by the Saucon creek through the South Mountain, the line leaves the Lehigh valley, and crosses the country to Philadelphia.

It is an important feature of our route, that every mountain range in the State is cut to its base by the streams we follow,

except two, the Nescopeck and the Wilkesbarre or Second Mountain, which, in fact, form but one summit, as a level line is preserved between them. This summit lies between the great anthracite coal basins, and is 1630 feet above tide water, requiring a gradient of 69 $\frac{7}{10}$ feet per mile to overcome it on the northern slope. This is the maximum gradient on the whole route, and is required at no other point; the steepest gradient elsewhere being 60 feet per mile. This is also the highest summit between Philadelphia and Buffalo. It is 47 feet lower than the Elk summit, and 349 feet lower than the Clarion summit, both on the Sunbury and Erie road; and is 531 feet lower than the Allegheny summit of the Pennsylvania Central road.

The Allegheny mountain which, after leaving the West Branch is known as the North mountain, Bald mountain and Mahoopeny mountain, in different localities, is cut through by the North Branch of the Susquehanna, and therefore offers no impediment to the North Pennsylvania Rail Road.

In order that no time might be lost in the examinations and locations upon so extended a line, several corps of engineers have been employed upon them, and a very large amount of labor has been performed. The field duties were not completed until December, and it has been consequently impracticable to prepare the estimates, which require a great deal of office work, in time for this report, except those of the southern division.

The character of the line, however, is highly satisfactory, as will be seen by the accompanying statements, which have been made from actual locations. The estimates will be submitted to the Board as soon as they can be prepared. The locations have been made with care throughout the entire distance from Philadelphia to Waverley, with the exception of about fourteen and a half miles between White Haven and the summit of Wilkesbarre mountain, for which distance the Wilkesbarre and White Haven Rail Road, belonging to the Lehigh Coal and Navigation Company may be used, provided it can be purchased or leased on satisfactory terms. The estimates, however, will cover the cost

of a new road for that distance, as no such arrangement may be practicable. That road is now valueless to the Lehigh company, and will remain a burthen upon their finances, if we should construct an independent line between the Lehigh and Susquehanna.

We have also during the past season located a branch Rail Road to Doylestown, one to Easton, and a loop line from the summit of the Wilkesbarre Mountain, passing near Wilkesbarre, Kingston and Troy to Pittston. The latter is intended for the development of the coal fields of the Wyoming Valley. Experimental surveys have also been made for extending the Easton branch to the Delaware Water Gap; but the lateness of the season prevented us from completing the location along the Delaware. These branches are important features of our great scheme, and while developing the extensive mineral and agricultural regions which they traverse, will also add largely to the revenues of our main trunk line. How far it is necessary or proper for this Company to construct them, or to aid in their construction, is for the Directors in their wisdom to determine, and our examinations will afford information necessary for their decision.

The North Pennsylvania Rail Road presents one aspect of peculiar interest to its Stockholders, viz: that any considerable section of it which may be constructed, will become available and productive, without the completion of the entire route, although its full benefits cannot be realized until that event takes place. The history of the Pennsylvania Central Rail Road, each link of which as it was completed, paid full interest on the cost of its construction, shews the importance of this peculiarity. Like that great work, we are nowhere in the woods, but at all points which we may reach, connections can be made with existing improvements, that will extend the range of influence far beyond the immediate region which we traverse.

From Philadelphia to Bethlehem, a distance of 54 $\frac{27}{100}$ miles, most of which is now in progress of construction, will connect us with the Lehigh Valley Rail Road, and through it with the towns on the Lehigh, Easton, Allentown, Mauch Chunk, &c. The local

freight and passengers will make this division a profitable road, and it would be difficult to estimate the saving it would produce to the citizens of Philadelphia, in marketing and the products of the dairy alone. Nearly the whole extent of this division is through a populous, healthy, fertile and long settled district, developed as far as it well can be by good common roads and turnpikes, but greatly needing the conveniences of a Rail Road. Through Philadelphia and Montgomery counties, as well as that part of Bucks, which is traversed by the Doylestown branch, frequent accommodation trains for freight and passengers will be required. The line is well adapted for high speed, and the picturesque and beautiful scenery, makes it extremely attractive for villa residences, which will be brought by the Rail Road into immediate proximity with Philadelphia. The lumber and coal of the Lehigh, and the lime of White Marsh and the Saucon Valley, are needed throughout this agricultural district, and will furnish large tonnage; $5\frac{33}{100}$ miles from Bethlehem we reach the Crane Iron Works, at Catasaqua, where there are five furnaces, manufacturing from 25,000 to 30,000 tons of metal per annum; $24\frac{7}{10}$ miles further, we find Mauch Chunk, where we connect with the roads of the Lehigh Company; eight miles further, brings us to Penn Haven, and the roads of the Beaver Meadow and Hazleton Companies. These branches open to us the anthracite of the southern and middle coal fields, the excellent quality of which is so well known to our citizens. $11\frac{68}{100}$ miles north, we reach White Haven, and are connected by the White Haven and Wilkesbarre Rail Road, with the boundless mineral treasures of the Wyoming Valley. This immense coal field will enjoy by our road a double outlet, being the source from which central and western New York must receive their supplies of Anthracite coal. The excellent gradients of this road northward, will insure us as much coal tonnage as may be found desirable, and there can be but little doubt that the Susquehanna division would be a profitable investment, as an independent road. Its maximum gradient is 20 feet per mile. The North Branch

Canal and the Works of the Lehigh Navigation Company will afford great facilities for the transportation of materials for construction, as well as of laborers and provisions.

The following statement exhibits the distances by actual location between the most important places on the main line and Philadelphia; the point from which they are computed being the junction of Washington and Master streets, in Philadelphia, corresponding nearly with the places from which the distances on the Trenton Rail Road and Bethlehem Turnpike are measured. From this point to Willow and Front streets, the distance by our proposed city track is one mile.

Distances from corner of Master and Washington Streets—in miles.

Elwood Lane, - - -	2.04	Koffels' Gap, - - -	34.51
Nicetown Lane, - -	2.55	Bunker Hill, - - -	36.25
Fisher's Lane, - - -	3.75	Quaker Town, - - -	38.01
Green Lane, - - -	5.08	Sames' Gap, - - -	42.57
Oak Lane, - - - -	5.80	Coopersburg, - - -	43.60
Mill Road, - - - -	6.37	Heller Town, - . -	49.70
Shoemaker Town, Willow Grove T. P., -	7.24	Bethlehem, - - - -	54.27
Washington Lane, -	8.20	Rittersville, - - -	56.30
Edgehillville, - - -	10.74	Catasaqua, - - - -	59.60
Camp Hill, - - - -	12.40	Lockport, - - - -	69.40
Hirsch's Bethleh. T.P.	13.70	Lehigh Gap, Aquanshicola, - - - -	78.70
Plymouth Road, - -	17.70	Weissport, - - - -	80.50
Sumney Town T. P., -	19.90	Mauch Chunk, - - -	84.30
Cow-path Road, - -	24.50	Penn Haven, - - -	92.30
County-line Rd. Mont. and Bucks, - - -	27.40	Sandy Run, - - -	99.80
N. E. Branch Perkiomen, - - - - -	30.96	White Haven, - - -	103.98
Sellersville T. P., - -	31.26	Nescopeck Mt., Flat Notch, - - - -	113.60
Tunnel, . - - - -	33.13	Wilkesbarre Mt., or Second Mountain, -	118.46

Wilkesbarre and Easton T. P.,	122.46	Mahoopany,	158.40
Upper Pittston,	134.82	Laceyville,	168.13
N. Branch Canal, 1st crossing,	134.85	Sugar Run,	176.70
Lackawana Creek,	134.94	Tarry Town,	180.30
Tunkhannock,	150.90	Frenchtown Bend,	190.17
Horse-race Narrows,	155.94	Towanda,	197.77
		Athens,	212.87
		Waverley,	216.52

The following points are to be reached by Branches. The length of branch, and total distance from Philadelphia are given.

		Branch.	Total Miles.
	Doylestown,	10.00	31.26
Same Branch.	Freemansburg, connection with Lehigh Valley road,	1.51	53.10
	Easton—Hamilton Street,	9.99	61.58
	Lackawana and Western R.R., on Delaware below Water Gap, near Aken's Ferry,	30.99	82.58
	Allentown,	2.60	59.60
	Rock Port, on Lehigh,	2.00	98.50
	Wilkesbarre, by Lehigh and Susquehanna Rail Road,	5.38	123.84
	Scranton, by Lackawana and Bloomsburg Rail Road,	8.00	142.84

The lateness of the season prevented some important trial lines and revisions of location, which have been deferred until a more favorable opportunity. One of the most important of these is between Bethlehem and Catasaqua; where I propose to locate a line in the valley of the Lehigh, with a view of accommodating Allentown, and the important region of which it is the centre. Such a line will be about two and three-fourth miles longer than the location we have made, and will have a considerable amount of curvature, while the present route is almost perfectly straight. Whether we can best accommodate the trade in

question, by a connection with the Lehigh Valley road at Bethlehem, or by a branch, about two and a half miles long, from a point between Bethlehem and Catasaqua; or whether it will be best to lengthen our main line for the accommodation of this trade, which is a very important one,—are questions which should receive careful consideration before any final decision is made; and I propose to put no work under contract, which will in any manner affect the adoption of either of these plans, until they have been fully investigated.

In order that the Company may avail themselves of their chartered privileges in the construction of the great highway which I have endeavored to describe, they should without delay take possession of the two passes which form the keys of the route, and which must be secured soon, in order to prevent their being seized by our active and enterprising rivals. These are the upper Lehigh from Mauch Chunk to White Haven, and the upper Susquehanna from Towanda to Waverley. On the upper Lehigh, the Beaver Meadow Rail Road, which extends from Mauch Chunk to Penn Haven, does not seriously interfere with our location. Its curvature renders it unsuitable for a link in a line intended for passengers and general transportation; and a first class road must necessarily occupy independent ground for a great part of the distance. There is, however, no room for two good rail roads there.

New York aims at the control of the valuable coal fields which have their outlet by the Lehigh valley, and it is paying no compliment to the sagacity of the New Jersey Central and Camden and Amboy Rail Road Companies to suppose, that while they control the Lehigh Valley Rail Road, we shall be admitted to a share of the trade which they can force into their own channels,—unless it is secured to us by contracts mutually advantageous.

Below Mauch Chunk, the Lehigh valley rail road, under the influence of the foreign corporations just named, is in progress, and the route is established throughout. The character of this

part of the valley is wholly different from the upper portion, and our locations shew that an independent line, shorter and better than the one in progress, is entirely practicable and feasible.

If the Company's means should not justify the simultaneous prosecution of the entire route, and they should conclude therefore to make a connexion either temporary or permanent with the Lehigh valley road, this could be done at Bethlehem; and that work could be used to the point between Mauch Chunk and Lehighton, where our line as now arranged crosses it. From this point our road should be extended to White-haven, completing the communication by connexion with the Wilkesbarre and White-haven rail road, between Philadelphia and the Wyoming valley.

Simultaneously with this, the northern part of our line from Waverley to Towanda should be put under contract. This piece of road is certain to be made by some interest, and its possession is vitally important to the ultimate success of our entire enterprise. It can be cheaply constructed, and will supercede the necessity of building two other rail roads for which charters have been granted, covering the same ground. It will also aid in the opening of the bituminous coal fields of Towanda creek, to which much attention has been recently given.

Guage of track.—It is a national misfortune that our American railways present at least six different widths of track,—4 feet 8½ inches, 4 feet 10 inches, 5 feet, 5 feet 4 inches, 5 feet 6 inches and 6 feet. This want of uniformity has already caused great practical inconvenience, and much useless expenditure, and will cause the construction of many unnecessary rival and interfering lines hereafter. But there is no remedy now for the evil, and each new road should have a guage corresponding with the most important lines with which it is intended to be connected, and from which its trade is to be drawn. Our own ultimate terminus at the New York and Erie Rail Road, which with all its branches has a six feet track; and the fact that the coal of the Wyoming

valley will seek a northern and western outlet by roads of that guage, seem to require the same on the Susquehanna division of our road. On the other hand, as all the existing or projected roads between the Wyoming valley and Philadelphia have the narrow guage, if we intend to terminate there, or at any point short of it, a track of 4 feet 8½ inches would be manifestly the proper one.

The relative value of any one guage over others, has been much overrated by the advocates of the respective plans which have been introduced or proposed; and the disadvantages arising from breaks of guage far more than counterbalance any peculiar practical merits that either of them possesses.

Without attempting an analysis of the subject, it may be remarked generally, that cars encounter less resistance in passing curves on the narrow guage, which makes it better for a crooked road; and that less dead weight is required for the rolling stock. The wide guage permits more commodious cars to be used, and gives more room for locomotive machinery. The most powerful freight engines yet built, however, are running on narrow guage roads; and the experience of the New York & Erie Railway Company has induced them to adopt inside bearings for their cars generally, which give no wider space between the journals, than the outside bearings of the narrow guage. The latter admits of wider cars than are usually constructed, provided the space between the tracks will permit them to be used, and the Little Miami and Xenia roads in Ohio now have passenger cars only four inches narrower than those of the New York & Erie Company. In my judgment, nothing but a confident expectation that the road will be carried through to Waverley, will make it advisable for us to adopt the wide guage, and of this the Board of Directors are the proper judges.

On the portion of the road now under contract, the graduation is wide enough for a double track of the wide guage, and the cross ties are nine feet long. The only reason, therefore, for pressing a decision on this subject, arises from the necessity of

making early contracts for our machinery, which for many reasons I desire should not be delayed; the most important of these will appear from the following remarks.—

In the repairs of cars and engines, very great economy will arise from uniformity in the machinery. If we have only one pattern for freight engines and one for passenger engines; one plan for the running gear of passenger cars, and one for freight cars; we shall be able, by keeping duplicates of all the parts liable to fracture at our repair shops, to perform repairs with great economy, and by making them promptly shall reduce materially the dead capital invested in engines and cars required to replace those undergoing repairs. The facility acquired by mechanics in repeating patterns with which they are familiar is known to every manufacturer.

If the Directors could take the testimony of all the trained and experienced railway superintendents in this country, they would find great differences of opinion as to the best form of locomotive engines. Every leading manufacturer of these machines would probably have intelligent advocates, indicating, what is doubtless true, that there is much less difference in the performance and economy of the engines of different makers than is usually supposed, but all would, I think, agree that it is extremely desirable to aim at uniformity on each particular road. The principal reason why this very desirable result has not been attained in any instance either here, or I believe, any where else except on the Russian rail roads, is that the contracts are postponed so long, that no one establishment is prepared to supply machines fast enough. Several different makers are therefore engaged, and variety being thus introduced on the road, the disposition of our ingenious countrymen to try new experiments is continually multiplying differences. I desire very much that the North Pennsylvania Rail Road Company should set an example in this matter, but it can only be done by making our arrangements in due season.

It is worthy of consideration under the peculiar difficulties which our case presents, whether it may not be advisable to lay down the broad guage from Waverley to the Wyoming valley, and the narrow gauge thence to Philadelphia, making provision for sufficient width of road bed on the southern portion to put down a third rail hereafter, so as to admit of cars of both guages being used on that part of the road. Should this be done, it would result probably in the coal and other freight business of the Lehigh valley being done on the narrow track, and the passenger and through tonnage on the broad track. The complication of machinery would be objectionable, and the increased cost considerable, but it appears to be the only effectual means of obviating the difficulties arising from break of guage.

The portion of the road now under contract extends from the suburbs of Philadelphia at Gunner's Run, to Hellertown on the Saucon, a distance of 47½ miles, and the contracts will shortly be extended to Bethlehem, with a branch to the mouth of Saucon, opposite to Freemansburg, at both which points a connection with the Lehigh Valley road can be made if advisable.

This part of the road is what is technically called a cross country line, with undulating gradients. It follows in part the vallies of Tacony creek, Sandy run, Wissahiccon, North Branch of Tohicken, and Saucon creeks; crosses several of the small branches of Neshaminy and Tohicken, and the north-east fork of Perkiomen, and overcomes several well marked and continuous ridges known as Edge Hill, Nigger Hill, Landis' ridge, Rocky Ridge and Flint Hill. These, with the exception of Landis' ridge, which keeps the same level for many miles, are all passed at marked and decided depressions below their usual elevation. The only exception is tunnelled at the narrowest point within the limits of our surveys. To save distance and curvature on the Wissahiccon, a costly line has been adopted, by which we obtained an alignment as good as a tangent for 9¾ miles, there being in this distance only one slight curve of more than two miles radius. For the same reason heavy work is encountered,

though of less magnitude, between Hellertown and Bethlehem. As the value of the whole road *to Philadelphia* depends upon the excellence of this southern division, a wise economy required that it should be made as good a road as the country permitted, and in some instances bold and expensive work has been encountered to reduce both the amount and rate of curvature to a minimum. In this we have been very successful, the smallest radius of curvature for a distance of about 28 miles from Philadelphia being 2865 feet, and of this extent more than three-fourths is straight line. The same maximum rate of curvature will be maintained throughout the Doylestown branch, which has also but little curvature.

The minimum radius from Philadelphia to Bethlehem is 1637 feet, and there will be no worse curvature to Lehighton, about 82 miles. From the latter point to Waverley, the minimum radius is 1042 feet, as traced on the ground, with the exception of one curve near Mauch Chunk, which we shall endeavor to reduce to this.

The steepest gradient ascending from the Lehigh towards Philadelphia is $52\frac{8}{10}$ feet per mile, in the direction of the heaviest trade. This is encountered in approaching the head of Saucon. A grade of 60 feet per mile ascending to the north is encountered at two places.

The principal elevations and depressions of grade surface referred to mean tide as a datum are shown in the following table:

Table of Elevations above mean tide, between Philadelphia and Bethlehem.

Depressions.	Feet.	Elevations.	Feet.
Philadelphia, at Washington and Master streets,	18	Edge Hill,	271
Wissahiccon,	168	Gwynedd Hill,	372
Neshaminy,	293	Nigger Hill,	435
Perkiomen,	306	Rocky Ridge,	520
Tohicken,	482	Flint Hill,	592
Saucon,	248	Spur of S. Mountain,	286
Bethlehem,	218		

Some minor undulations are not noticed in the above table. The total amount of ascents northward is 1,084 feet, and of descents, 884 feet; there being 200 feet difference in level of road surface at Philadelphia and Bethlehem.

The Landis Ridge Tunnel is 1800 feet long, and has a difficult rock cut at the northern portal. The cut at the southern end is nearly done, and tunnelling has been commenced, with promise of very favorable material. A shaft has been also sunk 600 feet from the north end, and is below the crown of the tunnel. It has been delayed by water, but will, I hope, now be prosecuted vigorously. There are deep cuts at Edge Hill, Nigger Hill, Flint Hill and Gwynedd, of considerable magnitude. At Gwynedd, which is the most formidable, I have sunk a shaft, and commenced a tunnel not originally designed. Its object is to hasten the completion of the work, and its length will be determined hereafter, by motives of economy and expedition. The rock is of such character that no arching will be required. A trial shaft was sunk at Edge Hill, with a view to a short tunnel there with similar objects, but the material was unfavorable.

A tabular statement annexed to this Report, shows the work done, and amounts paid on each section that has been commenced. Many of the light sections have been postponed in order to save interest on capital, there being time enough to complete them simultaneously with the more expensive sections, the contractors of which are generally pushing their work satisfactorily. During the summer and fall the scarcity of laborers produced serious detention, and the general progress of the graduation by no means equals my anticipations when the contracts were made. We have now a force of about 2,000 men and 500 horses at work upon the 31 sections that have been commenced.

I expect to open the road to the Wisahiccon next fall, and to Bethlehem early in 1855.

The proposed Doylestown branch has been arranged with a double purpose. The town and surrounding country need a good

railroad connection with Philadelphia, and also with the coal and lumber regions of the Lehigh. Fortunately, the shortest and cheapest line for the branch is the only one which can well accomplish both objects; and although not the shortest practicable line to Philadelphia, it is one which we can work more cheaply than any other, on account of the small investment, the favorable curvature, and the less agregate of miles of road to be kept up. When to these facts the advantage of the Lehigh connection is added, which tells both in favor of the Company and the citizens of Doylestown, I think there will be no doubt that we have chosen the proper route. The length of this branch is 10 miles.

The estimates which accompany this Report, cover the cost of graduation and bridges for a double track road from Philadelphia to Bethlehem, with single track branches to Doylestown and the mouth of the Saucon near Freemansburg, in all 66.78 miles of road. At the present prices of iron, I do not think it advisable to put down more than one track of superstructure on the main line, but have provided for six miles of sidings in addition to the city tracks. A double track will be required as far at least as the Doylestown branch before long, but we can dispense with it for the present.

The character of the work being now well developed by the excavations, the estimates may be relied on with considerable certainty. Where the contract prices are insufficient to complete the work, enough has been added to cover this, and allowances are made to cover the expenses likely to arise from unforeseen causes.

The superstructure proposed, is as follows, viz:—On the main track rails of 64 lbs. per yard, supported on cross-ties 9 feet long, 6 by 7 inches, and 2 feet apart, with broken stone ballast. On the branches, 50 lbs. rails similarly supported. On the city track, grooved street rails, like those laid down in New York and Pittsburgh, weighing 85 lbs. per yard, on continuous bearings of timber. These rails offer no obstruction to the ordinary paving,

nor to the passage of common carriages, and will be laid in two tracks from the outer depot to Willow street.

Favorable sites for stations have been procured along the route generally; and at Philadelphia, the block owned by the Company included by Front, Willow and Noble streets, and Washington Avenue, will make an excellent freight and passenger station for the present purposes of the Company. It is probable, however, that at a future day this whole block will be required for freight, and I propose to arrange the buildings upon it so that they will be available for this purpose without material alteration. The lot owned by the Company on Washington street, is well adapted for the shops and outer depot, which will be planned with a view to future enlargement and extension.

The cost of land, and also fencing and damages, belong to a different department and are not included in these estimates.

The expenses of outfit for shops, stations, engines, cars, tools, &c., are not capable of accurate determination, as they will increase from year to year, with the development of the business of the road. I have estimated them at a sum sufficient to cover present exigencies, assuming that tasteful buildings will be constructed.

The Engineering expenses have been very large, on account of the very great amount of surveys and locations which have been made during the past season. In order to show where they have been incurred, I have opened accounts with different portions of the road, as follows, viz:

Southern division, from Philadelphia to Bethlehem, including Doylestown branch. Lehigh division, Bethlehem to Pittston, with branches to Wilkesbarre and Freemansburg. Susquehanna division, Pittston to Waverley, with part of loop line from Wilkesbarre to Pittston. Delaware division, Freemansburg to Easton and Water Gap.

It remains for me to acknowledge the faithful services of the gentlemen composing my corps. Mr. Strickland Kneass, as associate engineer, has given me most efficient aid upon the entire

line, both in the field and office. The work under contract has been superintended by P. L. Fox, and J. N. Du Barry, by whom the locations and final revisions were made; the former under my predecessor, Mr. Foster, having conducted the original surveys. Charles Delisle, made the surveys and locations from Hellertown to Freemansburg and Mauch Chunk; W. R. Maffet, those between Mauch Chunk and Pittston. George B. Roberts made the original surveys of the North Branch, and the locations from Waverley to Tunkhannock, and also those between Freemansburg and Easton, and on the Delaware. John D. Fife, made the location from Pittston to Tunkhannock, and the surveys and locations in the Wyoming Valley. To all these gentlemen, and to their assistants generally, I am indebted, for the zeal and industry with which they have performed the important duties assigned them.

GENERAL ESTIMATE OF COST,

For the North Pennsylvania Rail Road to Bethlehem, including branches to Freemansburg and Doylestown.

From Front and Willow streets to Washington and Lancaster streets, 1.56 *miles, double track, street rails.*

Graduation, masonry and bridging,	$3000 00	
Cross ties, - - -	2208 00	
Stringers, - - -	3000 00	
Fastenings, - - -	300 00	
Iron rail, 85 lb. per yard, -	29400 00	
Taking up old paving, and putting down new track, paving and gravel,	3800 00	
		41,708 00
Amount carried forward,		$41,708 00

Amount brought forward,		$41,708 00
From Washington and Lancaster streets to Bethlehem, 53.70 miles, *road bed* double track.		
Graduation, masonry and bridging,	$1,655,100 00	
Ballast, single track, - -	56,800 00	
Cross ties, - - - -	62,425 00	
Chairs, - - -	14,000 00	
Spikes, - - - -	15,800 00	
Iron for track, 64 lb. per yard, @ $70,	375,900 00	
Laying superstructure, &c., -	32,200 00	
		2,212,225 00
Sidings, 6 miles length, @ $10,250 00 per mile, - - -	61,500 00	
Depots, stations and shops, -	200,000 00	
Equipment of road and shops, -	200,000 00	
Engineering, &c., - -	64,567 00	
		526,067 00
		$2,780,000 00
Branch to Doylestown, - -	$160,000 00	
" " Freemansburg, -	40,000 00	
		200,000 00
		$2,980,000 00

As the preceeding estimate exceeds very much that made by my esteemed predecessor in his report of November 1852, it is necessary to point out the reasons which have so greatly augmented it.

Mr. Foster's line commenced at Lehigh Avenue and Second Street, and extended to the mouth of Saucon, its length being $58\frac{4}{10}$ miles. Between the same points our own location is only $52\frac{1}{10}$ miles, making a saving of distance of $6\frac{3}{10}$ miles. Our curvature is also greatly reduced both in rate and amount. He estimated that two-thirds would be straight line, while we have

about three-fourths straight line. He estimated the cost of iron at $60 per ton; I have put it down at $70. His maximum gradient at Landis ridge was 65 feet per mile ascending north, ours is 60 feet. His maximum gradient at head of Saucon, ascending south, was 70 feet per mile, ours is 52.8.

Our embankments are estimated two feet wider, our rock cuts three feet wider, and our earth cuts four feet wider than his:—and the advanced cost of labour and provisions must necessarily be allowed for. I have also estimated for six miles of sidings instead of three; for a line to Bethlehem as well as to Freemansburg, $2\frac{78}{100}$ miles, over difficult ground; for a branch of ten miles to Doylestown, and for bringing our road to Front and Willow Streets, instead of terminating at Lehigh Avenue; this brings us $2\frac{3}{10}$ miles further into the city, of which $1\frac{56}{100}$ miles is a costly double city street track. Mr. Foster also did not include in his estimate anything for buildings, except wood and water stations; nor for cars, engines, and shops.

To make a fair comparison between the estimates the following allowances should be made.—

Mr. Foster's Estimate of November 1852.	1,582,715 00
Add for enlarged dimensions of road, bed, and advance of labour and provisions about 10 per cent.	158,185 00
Estimated cost of Doylestown branch.	160,000 00
" " Bethlehem branch.	137,000 00
" " $2\frac{3}{10}$ miles from Lehigh Avenue to Willow Street.	51,400 00
Three miles extra of sidings.	31,000 00
$10 extra per ton on iron.	53,700 00
Shops, passenger and freight stations.	175,000 00
Engines, cars, and tools.	200,000 00
Amount carried forward,	$2,549,000 00

Amount brought forward,	$2,549,000 00
Allowance for saving of $6\frac{3}{10}$ miles of distance at the rate used on the Pennsylvania Central Rail Road, for comparison of lines, $10 per foot.—A moderate allowance,	332,600 00
	$2,881,600 00

Without making any allowance for the great improvement in curvature, which is very important, this brings Mr. Foster's estimate within $100,000 of our own. A difference not remarkable when it is remembered that his estimate was based on experimental surveys, while our own is upon work mainly in course of construction, well developed, and carefully calculated with large allowances for contingencies. It is proper to remark that before leaving the Company's service, Mr. Foster had commenced the surveys of the Sandy Run route, and projected several other modifications of the original line which have resulted in important improvements. Although his estimate was necessarily based on the surveyed line, I have no doubt that the route now adopted would have received his ultimate sanction, and the foregoing statements and comparisons have only been made to shew the causes of the discrepancy in the estimates which might be otherwise have been unintelligible.

The whole expenditures on account of engineering to this time are as follows: *viz.*—

Southern Division; Philadelphia to Bethlehem.	$24,786 45
Lehigh Division; Bethlehem to Pittston,	10,919 16
Susquehanna Division; Pittston to Waverley,	7,572 03
Delaware Division; Bethlehem to Delaware Water Gap, - - - - -	3,350 58
Total, - -	$46,628 22

The whole amount expended for Graduation and Bridges to this date, - - -	$165,900 00
For Road Superstructure account, Iron Rails,	22,781 33
Total expenditures in my Department,	$235,309 55

The Estimated amount of work done on Graduation and Bridges, - - -	$196,485 00
Of which there is retained as security,	30,585 00

All of which is respectfully submitted.

EDWARD MILLER,
Chief Engineer.

January 4th, 1854.